

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Nucor Steel Kankakee, Inc.  
Attn: Mr. John Ohm  
972 East 4500 North Road  
Bourbonnais, Illinois 60914

Application No.: 04060017

I.D. No.: 091801AAA

Applicant's Designation:

Date Received: June 3, 2004

Subject: Reheat Furnace

Date Issued: November 19, 2004

Location: 972 East 4500 North Road, Bourbonnais

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a reheat furnace as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1. Description

Nucor Steel is proposing to install a new reheat furnace to replace an existing unit, at its steel plant in Kankakee. The furnace reheats steel billets to hot rolling temperatures.

2. Emission Units and Pollution Control Equipment

Emission Unit	Emission Control Equipment
Reheat Furnace 160 mmBtu/hr	N/A

3. Applicability Provisions

- a. The "affected reheat furnace" for the purpose of this permit is the new reheat furnace, as described in condition 2 unless otherwise stated in the following conditions.
- b. At all times, the Permittee shall, to the extent practicable, maintain and operate the affected reheat furnace, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.
- c.
  - i. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere. [35 IAC 212.123(a)]

- ii. The emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 1000 ft radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period [35 IAC 212.123(b)].
- d. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally toward the zenith at a point beyond the property line of the source. [35 IAC 212.301]
- e. The total particulate emissions from the affected reheat furnace shall not exceed the allowable emission rate specified by 35 IAC 212.321. Accordingly, the emissions of particulate matter into the atmosphere from the affected reheat furnace in any one hour period shall not exceed the allowable emission rate specified by the following equation:

$$E = A (P)^B$$

Where:

P = Process weight rate

E = Allowable emission rate

- i. For process weight rates up to 408 MG/hr (450 T/hr):
  - A. 2.54
  - B. 0.534
- ii. For process weight rates in excess of (450 T/hr):
  - A. 24.8
  - B. 0.16
- f. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2,000 ppm [35 IAC 214.301].
- g. No person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hr) to exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].

4. Non-Applicability of Regulations of Concern

- a. This permit is issued based on the construction of the affected reheat furnace not constituting a major modification subject to 40 CFR 52.21, Prevention of Significant Deterioration, PSD. The Permittee has addressed the applicability of PSD, demonstrating that the new construction will not result in a significant increase in emissions, subject to the limitations in conditions 5 and 6. See Attachment 1

5. Operational and Production Limitations

- a. Natural gas shall be the only fuel used by the affected reheat furnace.
- b. Annual natural gas usage shall not exceed 1401.6 million SCF.

6. Emission Limitations

- a. Emissions from the affected reheat furnace shall not exceed the following limits:

Pollutant	(Tons/Month)	(Tons/Year)
PM	0.53	5.33
CO	5.89	58.9
NO <sub>x</sub>	4.9	49.1
VOM	0.39	3.85
SO <sub>2</sub>	0.05	0.42

These limits are based on the usage limits in Condition 5, and information supplied in the permit application.

- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

7. Testing Requirements

- a. Within 120 days after achieving the maximum production rate at which the affected reheat furnace will be operated but not later than 180 days after startup of the unit, and at such other times as may be required by the Illinois EPA under section 114 of the Act, the Permittee shall have emission test(s) conducted for NO<sub>x</sub> as follows:
- b. The following methods and procedures shall be used for testing of NO<sub>x</sub> emissions, refer to 40 CFR 60, Appendix A for USEPA test methods:

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Nitrogen Oxides	USEPA Method 7

- c. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review and approval. This plan shall describe the specific procedures for testing including as a minimum:
  - i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
  - ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of the maximum emissions, the levels of operating parameters at or within which compliance is intended to be shown, if parameters for the process and any control equipment will be determined.
  - iii. The specific determination of emissions and operations which are intended to be made, including sampling and monitoring locations.
  - iv. The test methods which will be used, with the specific analysis method.
  - v. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification.
  - vi. A statement that the testing will be performed by a qualified independent testing service.
- d.
  - i. Prior to carrying out these test, the Illinois EPA shall be notified a minimum of 30 days prior to the scheduled date of these tests with the exact date, time and place of these tests, to enable the Illinois EPA to witness these tests.
  - ii. If the scheduled date for the test is changed the Permittee shall inform the Illinois EPA within five (5) working days of the scheduled test date and must specify the date of the rescheduled test.
- e. A copy of the Final Reports for these tests and compliance status shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized.

8. Monitoring Requirements

N/A

9. Recordkeeping Requirements

- a. The Permittee shall maintain records of the following items for the affected reheat furnace:

- i. Emissions of: PM, SO<sub>2</sub>, NO<sub>x</sub>, VOM, and CO in tons/month and tons/year.
- ii. Natural gas usage (mmscf/month and mmscf/year).

10. Reporting Requirements

- a. The Permittee shall promptly notify the Illinois EPA, Compliance Section of any exceedance of the emission limitation in this permit of the affected reheat furnace with the permit requirements. These reports shall be submitted within 30 days of the exceedance and shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

11. Two copies of required reports and notifications concerning equipment operation or repairs, performance testing or continuous monitoring systems shall be sent to:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
Springfield, Illinois 62794-9276

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
9511 West Harrison  
Des Plaines, Illinois 60016

12. Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Condition 9 and the emission factors listed below:

- a. Compliance with Condition 6 shall be calculated based on the following emission factors:

Pollutant	Emission Factor (Lb/mmscf)
PM	7.6
NO <sub>x</sub>	70.0
SO <sub>2</sub>	0.6
VOM	5.5
CO	84.0

- b. These emission factors may be adjusted, through a minor permit modification request, based on the results of emissions testing as required by Condition 7.

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13. The Permittee is allowed to operated the affected reheat furnace under this construction permit as allowed by the CAAPP permit until final action is taken on a revision to or renewal of their CAAPP permit.

If you have any questions on this permit, please call Kevin Smith at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:KLS:psj

cc: Region 1

Attachment 1

PSD Applicability

**Table I - Past Actual Emissions for Existing Reheat Furnace**  
Tons/Year

<u>CO</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>	<u>NO<sub>x</sub></u>	<u>PM</u>
16.9	0.25	2.32	80.1	2.19

**Table II - Future Potential Emissions for New Reheat Furnace**

<u>CO</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>	<u>NO<sub>x</sub></u>	<u>PM</u>
58.9	0.42	3.85	49.1	5.33

**Table III - Net Emissions Change From This Project (Tons/Year)**

	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>	<u>NO<sub>x</sub></u>	<u>PM</u>
Table I	16.9	0.25	2.32	80.1	2.19
Table II	58.9	0.42	3.85	49.1	5.33
Totals	42.0	0.17	1.53	- 31.0	3.14

KLS:psj